CLASS 11 CHEMISTRY — LO's Aligned Monthly Split-up Syllabus (April 2026–March 2027) + Portion Boundaries + Exams + Weightage + Question Paper Design + Blueprint (For CM SoE & Non-CM SoE)

Developed by:- Jharkhand Council Of Educational Research & Training (Curriculum Division)

Month	Teaching Days (Available)	NCERT Chapter Titles	Sub-topics / Portion Boundary	LOs (*LO Mapping - IDs) (NCERT Higher Secondary Stage LO - Draft)	Practicals / Activities (Minimum)	Assessment / Exams (प्रश्न पत्र एवं उत्तर कुंजिका निर्माण)
Apr2026 + May 2026 + Jun 2026		CHEM: Unit 1 Some Basic Concepts of Chemistry (Complete); CHEM: Unit 2 Structure of Atom (Start/Continue)	Unit 1: 1.1 Importance of Chemistry; 1.2 Nature of Matter; 1.3 Properties of Matter and their Measurement; 1.4 Uncertainty in Measurement; 1.5 Laws of Chemical Combinations; 1.6 Dalton's Atomic Theory; 1.7 Atomic and Molecular Masses; 1.8 Mole Concept and Molar Masses; 1.9 Percentage Composition; 1.10 Stoichiometry and Stoichiometric Calculations. Unit 2 (start): 2.1 Discovery of Sub-atomic Particles; 2.2 Atomic Models; 2.3 Developments Leading to the Bohr's Model of Atom.	LO-CHM-XI-01, LO-CHM-XI-03, LO-CHM-XI-06, LO-CHM-XI-09, LO-CHM-XI-10, LO-CHM-XI-11, LO-CHM-XI-12, LO-CHM-XI-19	Lab/Activity: determination of melting point/boiling point of an organic compound (demo/record where feasible); crystallization of impure sample (alum/copper sulphate/benzoic acid); stoichiometry worksheet; atomic model chart (Thomson/Rutherford/Bohr).	April to June portion tested in Project RAIL on 07-07-2026 DIET Hazaribag एवं DIET Jamtara
Jul 2026	14	CHEM: Unit 2 Structure of Atom (Finish); CHEM: Unit 3 Classification of Elements and Periodicity in Properties (Start/Finish)	Unit 2: 2.4 Bohr's Model for Hydrogen Atom; 2.5 Towards Quantum Mechanical Model of the Atom; 2.6 Quantum Mechanical Model of Atom. Unit 3: 3.1 Why do we Need to Classify Elements?; 3.2 Genesis of Periodic Classification; 3.3 Modern Periodic Law and the Present Form of the Periodic Table; 3.4 Nomenclature of Elements with Atomic Numbers > 100; 3.5 Electronic Configurations of Elements and the Periodic Table; 3.6 Electronic Configurations and Types of Elements: s-, p-, d-, f- Blocks; 3.7 Periodic Trends in Properties of Elements.	LO-CHM-XI-01, LO-CHM-XI-02, LO-CHM-XI-06, LO-CHM-XI-09, LO-CHM-XI-10, LO-CHM-XI-11, LO-CHM-XI-13, LO-CHM-XI-19	Activity: electronic configuration drill + periodic table mapping (s/p/d/f blocks). Graph work: variation of atomic radius / ionization enthalpy with atomic number. Practical file: classification of elements + models of atomic structure.	July portion tested in Project RAIL on 04-08-2026 DIET Latehar एवं DIET Lohardaga
Aug 2026	12	CHEM: Unit 4 Chemical Bonding and Molecular Structure (Start/Continue)	Unit 4: 4.1 Kössel-Lewis Approach to Chemical Bonding; 4.2 Ionic or Electrovalent Bond; 4.3 Bond Parameters; 4.4 The Valence Shell Electron Pair Repulsion (VSEPR) Theory; 4.5 Valence Bond Theory.	LO-CHM-XI-05, LO-CHM-XI-06, LO-CHM-XI-07, LO-CHM-XI-11, LO-CHM-XI-15, LO-CHM-XI-17, LO-CHM-XI-19	Activity: Lewis structures and bond parameters chart. Molecular shape modelling with balloons / model kit (VSEPR). Practice: ionic vs covalent bond comparison and short numericals on bond parameters.	Half Yearly Exam: 07-09-2026 to 12-09-2026 (covers Jun–Aug).
Sep 2026	23	CHEM: Unit 4 Chemical Bonding and Molecular Structure (Finish); CHEM: Unit 5 Thermodynamics (Start)	Unit 4: 4.6 Hybridisation; 4.7 Molecular Orbital Theory; 4.8 Bonding in Some Homonuclear Diatomic Molecules; 4.9 Hydrogen Bonding. Unit 5 (start): 5.1 Thermodynamic Terms; 5.2 Applications; 5.3 Measurement of ΔU and ΔH: Calorimetry.	LO-CHM-XI-05, LO-CHM-XI-06, LO-CHM-XI-07, LO-CHM-XI-08, LO-CHM-XI-09, LO-CHM-XI-10, LO-CHM-XI-15, LO-CHM-XI-19	Lab/Activity: calorimetry setup and observation sheet. Molecular orbital filling practice for homonuclear diatomic molecules. Half-yearly recap worksheet on Units 1–4.	September portion tested in Project RAIL on 06-10-2026 DIET Ramgarh एवं DIET Ranchi
Oct 2026	22	CHEM: Unit 5 Thermodynamics (Finish); CHEM: Unit 6 Equilibrium (Start/Continue)	Unit 5: 5.4 Enthalpy Change, ΔrH of a Reaction – Reaction Enthalpy; 5.5 Enthalpies for Different Types of Reactions; 5.6 Spontaneity; 5.7 Gibbs Energy Change and Equilibrium. Unit 6 (start): 6.1 Equilibrium in Physical Processes; 6.2 Equilibrium in Chemical Processes – Dynamic Equilibrium; 6.3 Law of Chemical Equilibrium and Equilibrium Constant; 6.4 Homogeneous Equilibria; 6.5 Heterogeneous Equilibria; 6.6 Applications of Equilibrium Constants.	LO-CHM-XI-03, LO-CHM-XI-05, LO-CHM-XI-06, LO-CHM-XI-08, LO-CHM-XI-09, LO-CHM-XI-10, LO-CHM-XI-19, LO-CHM-XI-20	Lab/Activity: pH of fruit juices / acids / bases using pH paper or universal indicator. Chemical equilibrium shift experiment (Fe^{3+}/SCN^- or cobalt complex) (demo/record). Worksheet: Hess's law and Gibbs energy based numericals.	October portion tested in Project RAIL on 03-11-2026 DIET Simdega एवं DIET W-Singhbhum.
Nov 2026	14	CHEM: Unit 6 Equilibrium (Finish); CHEM: Unit 7 Redox Reactions (Complete); CHEM: Unit 8 Organic Chemistry – Some Basic Principles and Techniques (Start)	Unit 6: 6.7 Relationship between Equilibrium Constant K, Reaction Quotient Q and Gibbs Energy G; 6.8 Factors Affecting Equilibria; 6.9 Ionic Equilibrium in Solution; 6.10 Acids, Bases and Salts; 6.11 Ionization of Acids and Bases; 6.12 Buffer Solutions; 6.13 Solubility Equilibria of Sparingly Soluble Salts. Unit 7: 7.1 Classical Idea of Redox Reactions-Oxidation and Reduction Reactions; 7.2 Redox Reactions in Terms of Electron Transfer Reactions; 7.3 Oxidation Number; 7.4 Redox Reactions and Electrode Processes. Unit 8 (start): 8.1 General Introduction; 8.2 Tetravalence of Carbon: Shapes of Organic Compounds; 8.3 Structural Representations of Organic Compounds; 8.4 Classification of Organic Compounds.	LO-CHM-XI-02, LO-CHM-XI-03, LO-CHM-XI-05, LO-CHM-XI-06, LO-CHM-XI-10, LO-CHM-XI-11, LO-CHM-XI-15, LO-CHM-XI-16, LO-CHM-XI-19	Lab/Activity: quantitative estimation – preparation of standard solution of oxalic acid; qualitative analysis of one cation and one anion (where feasible). Oxidation number drill + organic compound classification chart.	November portion tested in Project RAIL on 08-12-2026 DIET Deoghar एवं DIET Dhanbad
Dec 2026	21	CHEM: Unit 8 Organic Chemistry – Some Basic Principles and Techniques (Finish); CHEM: Unit 9 Hydrocarbons (Start/Continue)	Unit 8: 8.5 Nomenclature of Organic Compounds; 8.6 Isomerism; 8.7 Fundamental Concepts in Organic Reaction Mechanism; 8.8 Methods of Purification of Organic Compounds; 8.9 Qualitative Analysis of Organic Compounds; 8.10 Quantitative Analysis. Unit 9 (start): 9.1 Classification; 9.2 Alkanes; 9.3 Alkenes.	LO-CHM-XI-01, LO-CHM-XI-02, LO-CHM-XI-06, LO-CHM-XI-11, LO-CHM-XI-16, LO-CHM-XI-17, LO-CHM-XI-19, LO-CHM-XI-20	Activity: IUPAC nomenclature practice cards + isomerism worksheet. Detection of nitrogen / halogen in organic compounds (demo/record). Investigatory project work (mid-review) + hydrocarbon reaction mechanism chart.	December portion tested in Project RAIL on 12-01-2027 DIET Garhwa एवं DIET Giridih

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Jan 2027	18	CHEM: Unit 9 Hydrocarbons (Finish); Full Chemistry Revision + Practical File + Investigatory Project	Unit 9: 9.4 Alkynes; 9.5 Aromatic Hydrocarbon; 9.6 Carcinogenicity and Toxicity. Full syllabus wrap-up: Units 1–9; concept consolidation; board-style numericals; formulae, equations, nomenclature and reaction practice.	LO-CHM-XI-01, LO-CHM-XI-02, LO-CHM-XI-05, LO-CHM-XI-06, LO-CHM-XI-09, LO-CHM-XI-10, LO-CHM-XI-11, LO-CHM-XI-16, LO-CHM-XI-19, LO-CHM-XI-20	Practical consolidation: pH / equilibrium / estimation / salt analysis / organic detection record completion. Investigatory project completion (any approved topic). Full-length mixed worksheet + sample paper discussion.	Project RAIL (Full Syllabus) on 02-02-2027 DIET Hazaribag एवं DIET Jamtara
Feb 2027 (Revision Month)	19	Full Revision: Units 1–9 (NCERT) + Numericals + Practical File + Investigatory Project	Syllabus consolidation: concept maps; stoichiometry and thermodynamics numericals; periodic trends; bonding; equilibrium and redox; organic nomenclature and reaction mechanisms; hydrocarbons revision; practical file and investigatory project final check.	LO-CHM-XI-01 - LO-CHM-XI-20	Revision practicals + viva practice; sample papers; ICT-based molecular model review; project presentation and oral reporting.	Annual Examination: 01-03-2027 to 05-03-2027 AND 15-03-2027 to 20-03-2027 - full syllabus
Mar 2027	20	Board Examination (continued, if applicable) / Post-exam Academic Support	Board examination continuation / light post-exam academic engagement, bridge work, reading / enrichment / record completion as applicable.		Bridge activities / portfolio / reading enrichment / feedback.	Post-exam school support (as applicable)

LO ID	LOs (*LO Mapping - IDs) (NCERT Higher Secondary Stage LO - Draft)
LO-CHM-XI-01	differentiates technical terms/ phenomena/ processes, based on, properties/ characteristics, such as, gaseous state and vapours; atomic and molecular masses; extensive and intensive properties; close, open and isolated systems; alkanes, alkenes and alkynes; aliphatic and aromatic compounds etc.
LO-CHM-XI-02	classifies materials/ phenomena/ processes, based on, properties/characteristics, such as, elements, compounds and mixtures; elements into metals, metalloids and non-metals; s, p, d, f blocks; organic compounds on the basis of functional groups; substances as acids or bases according to Arrhenius, Bronsted-Lowry and Lewis concepts etc.
LO-CHM-XI-03	plans and conducts investigations/ experiments/projects to arrive at and verify the facts/ principles/ phenomena or to seek answers to queries on their own, such as, What will be the melting point of oxalic acid? Is there any difference in the pH of apple juice and pine apple juice? What is the effect of dilution on pH of acid / base? Does rate of evaporation of different liquids depend on density, mass, surface tension, viscosity, humidity and temperature of the surroundings? etc.
LO-CHM-XI-04	takes appropriate precautionary measures (do's and don'ts) while handling apparatus, chemicals during laboratory work such as use of safety glasses; wearing of laboratory coat; handling chemicals safely and judiciously; handling glass wares; performs reactions with harmful gases in fuming hood; discard or disposal of chemicals and broken glass wares properly etc.
LO-CHM-XI-05	relates processes and phenomena with causes/ effects, such as, variation of pH of the solution with the hydrogen ion concentration; water is liquid whereas hydrogen sulphide is gas; ozone layer depletion causes skin cancer, eutrophication and its adverse effects; process of evaporation causes cooling etc.
LO-CHM-XI-06	explains scientific terms/ factors / laws / theories governing processes and phenomena, such as, bonding in three states of matter; various laws of chemical combination; discovery of electron, proton and neutron; photoelectric effect; Periodic Law; characteristics of metals, non-metals and metalloids; VSEPR Theory to explain shapes of molecules; types of hydrogen bonding; ionization of water and its dual role as acid and base; hard and soft water; bonding in allotropic forms of carbon; spontaneous and nonspontaneous processes; factors affecting equilibrium; preparation of hydrocarbons; aromaticity; substitution reactions; atmospheric pollution etc.
LO-CHM-XI-07	draws diagrams/ flow charts/ concept maps/graphs, such as Lewis structures of simple molecules; shapes of simple covalent molecules based on hybridisation; geometry of molecules on the basis of VSEPR theory; setup of experiments; flow chart of classification of matter and organic compounds; graphs on pressure-volume, volume-temperature and pressure-temperature relationships etc.
LO-CHM-XI-08	derives equations, such as gas laws; second law of thermodynamics etc.
LO-CHM-XI-09	analyses and interprets graph/figure, such as variation of atomic radius with atomic number; variation of ionization enthalpies with atomic number; geometry of molecules etc.
LO-CHM-XI-10	calculates using the data given, such as mass per cent of different elements constituting a compound; wavelength of electromagnetic radiation; energy changes as work and heat contributions in chemical systems; enthalpy changes for various reactions; solubility product constant etc.
LO-CHM-XI-11	uses scientific conventions, symbols, chemical formulae and chemical equations as per international standards such as SI units; symbols and names of elements; formulae of compounds; chemical equations; electronic configurations; and names of organic compounds according to IUPAC etc.
LO-CHM-XI-12	measures physical quantities using appropriate apparatus, such as mass using analytical balance; volume using pipette, burette, volumetric flask, measuring cylinder; temperature using thermometer etc.
LO-CHM-XI-13	takes initiative to know about scientific discoveries/ inventions, such as fundamental particles in an atom; atomic models; development of Periodic Table; discovery of VSEPR; synthesis of urea etc.
LO-CHM-XI-14	appreciates the contribution of ancient chemistry of India and its role in metallurgy, medicine, manufacture of cosmetics, glass, dyes, baked bricks, pottery etc.
LO-CHM-XI-15	realizes and appreciates the interface of chemistry with other disciplines, such as Physics, Biology, Mathematics, Geology, Geography and Pharmaceutical Science etc.
LO-CHM-XI-16	applies scientific concepts in daily life and solving problems, such as weather patterns; manufacturing fertilizers; alkalis, acids, salts, dyes, polymers, drugs, soaps, detergents, metals, alloys, health care products, pesticides, acid rain, greenhouse gases, heavy metals etc.

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LO-CHM-XI-17	exhibits creativity in designing models using eco-friendly resources and out-of-box thinking in solving problems, such as 3-D model of sodium chloride structure; 3-D molecular models; models of Periodic Table; water purification; garbage management etc.
LO-CHM-XI-18	exhibits values of honesty, objectivity, rational thinking and freedom from myth/superstitious beliefs while taking decisions, respect for life, such as reporting experimental data honestly, listening patiently, open-mindedness and questioning attitude.
LO-CHM-XI-19	communicates the findings and conclusions effectively, such as those of experiment/activity/project orally and in written form using appropriate figures, tables, graphs and digital forms etc.
LO-CHM-XI-20	makes efforts to conserve environment, such as identifying causes of ozone layer depletion, water pollution and soil pollution; appreciating green chemistry; judicious use of chemicals; and use of micro-scale experimental techniques wherever possible.

QUESTION PAPER DESIGN / BLUEPRINT

A. THEORY BLUEPRINT

S.No.	Unit / Section Block	Marks	Prescribed Scope / Paper Component
1	Unit 1	7	Some Basic Concepts of Chemistry
2	Unit 2	9	Structure of Atom
3	Unit 3	6	Classification of Elements and Periodicity in Properties
4	Unit 4	7	Chemical Bonding and Molecular Structure
5	Unit 5	9	Chemical Thermodynamics
6	Unit 6	7	Equilibrium
7	Unit 7	4	Redox Reactions
8	Unit 8	11	Organic Chemistry: Some Basic Principles and Techniques
9	Unit 9	10	Hydrocarbons
	TOTAL	70	Theory Paper

B. TYPOLOGY OF QUESTIONS

S.No.	Category / Question Type	Marks	Weightage / Nature
1	Remembering & Understanding	28	40%
2	Applying	21	30%
3	Analysing / Evaluating / Creating	21	30%
	TOTAL	70	100%

C. INTERNAL / PRACTICAL / PROJECT

S.No.	Component	Marks	Remarks
1	Volumetric Analysis	8	
2	Salt Analysis	8	
3	Content Based Experiment	6	
4	Project Work	4	
5	Class record and viva	4	
	TOTAL	30	Practical